Claims:

1. An apparatus suitable for equalising a spectrum of a broadband light source comprising a first optical path and a second optical path; an optical splitter being connectable to an optical power source, for directing at least part of optical power from the optical power source to each of the first and second optical paths; an optical filter provided in the first optical path for filtering the optical signal propagating there through; and an optical combiner for combining at least part of the optical signals from each of the first and second paths into an output channel.

2. An apparatus as claimed in claim 1 wherein the optical splitter is tuneable to direct at least part of the optical power from the optical source to each of the first and second paths, in varying proportions.

3. An apparatus as claimed in claim 1 wherein an adjustable gain amplifier is provided in the second optical path to amplify to a varying degree, the optical signal propagating there through.

4. An apparatus as claimed in claim 3 wherein the adjustable gain amplifier has a gain of greater than 1 or less than 1, where a gain less than 1 attenuates the optical signal propagating through the second path and a gain of greater than 1 amplifies the optical signal propagating through the second path.

5. An apparatus as claimed in any one of the preceding claims wherein the optical combiner is a 3dB fixed optical coupler for directing half the optical power from the first path and half the optical power from the second path into the output channel.

6. An apparatus as claimed in any one of the preceding claims wherein the optical filter is a Long Period Grating (LPG).

7. An apparatus as claimed in any one of the preceding claims wherein the optical filter has an attenuation band corresponding to a range of wavelengths at which a peak in the spectrum of the optical power source occurs, such that the optical filter acts as a notch filter or a band stop filter.

8. An apparatus as claimed in any one of the preceding claims wherein the first and second paths are two arms of a Mach-Zehnder interferometer (MZI).

9. An apparatus as claimed in any one of the preceding claims wherein the apparatus is sufficiently tuneable to enable an input signal to be attenuated or amplified by at least 10dB (measured at the output channel).

10. An apparatus as claimed in any one of the preceding claims wherein the optical power source is an Amplified Spontaneous Emission (ASE) source.

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